STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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North Carolina Board of Transportation
Environmental Planning and Policy Committee
Meeting Minutes for February 4, 2004

A meeting of the Environmental Planning and Policy Committee (EPPC) was held on February 4, 2004 at 8:30 AM in the Board Room (Room 150) of the Transportation Building. Nina Szlosberg chaired the meeting. Other Board of Transportation members that attended were:

Tom Betts	Doug Galyon
Conrad Burrell	Larry Helms
Mac Campbell	Cam McRae
Marion Cowell	Andrew Perkins
Ty Cox	Lanny Wilson
Nancy Dunn	

Other attendees included:

Roberto Canales	Fred Lamar	Ken Pace
Mike Cowan	Neil Lassiter	Mike Pettyjohn
Sherri Creech Johnson	Emily Lawton	Bill Roser
Craig Deal	Don Lee	Len Sanderson
Steve Dewitt	Sharon Lipscomb	Roger Sheats
Dawn Garrison	Robin Little	John Sullivan
Lisa Glover	Odessa McGlown	Greg Thorpe
Rob Hanson	Ehren Meister	Sec. Lyndo Tippett
Phil Harris	Sarah Mitchell	Don Voelker
Julie Hunkins	Jon Nance	Dr. Mike Williams
Pay Ivey	Sandy Nance	Marcus Wilner
Berry Jenkins	Michelle Nowlin	Terry Wyatt

Ms. Szlosberg called the meeting to order at 8:30 AM and recognized special guests in attendance. Ms. Szlosberg accepted a motion to approve the meeting minutes from the January committee meeting as presented. Ms. Szlosberg opened by introducing Roberto Canales, State Construction and Materials Engineer, to present the annual report for the State Minimum Criteria.

Mr. Canales briefly reviewed the handout provided outlining a summary of the projects that have fallen within the criteria during the 2003 calendar year. He noted that the handout uses a new format and briefed the committee of

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the categories which are being tracked in the report. A total of 712 projects fell within the three categories affecting 980 miles. The projects averaged 1.4 miles and the average area disturbance per project was 1.2 acres. Mr. Canales reminded the committee of his last report at the December committee meeting and the concern about the differences in disturbance area in each division. He reiterated the minor disturbance on new location projects and defined what "new location" projects may involve. He commented that the reason for such differences in disturbance area per division is that every project is different and is judged on a case by case based. Mr. Canales presented some example photos from different locations that were used for the three criteria. Therefore, it's extremely difficult to define a divisions use of the newly disturbed acreage unless we look at each and every project. He noted that Category 15, which was a concern during the rule making process, only totaled approximately 3 miles during this report cycle. He opened the floor to questions.

Ms. Szlosberg asked if there was any more movement towards making this information available through the web. Mr. Canales responded that the Information Technology Section has just completed working with DOH to create a database that will eventually be used by the divisions to record and update the data. Training should begin soon to educate field personnel how to use the database. At that point, possibly by the end of the year, the Division of Highways plans to have the database information on the web. Mr. Canales responded with Ms. Szlosberg that they would work with the committee to clarify what additional information should be included on the web. Ms. Szlosberg thanked the department and staff working on this issue, noting that the department has taken enormous strides to be up front with the public concerning the State Minimum Criteria and it shows that we really do mean what we say about taking the environment seriously.

Ms. Szlosberg began the next agenda topic by noting its importance to the state. The hog industry is a very important part of our economy and swine waste technology has a potential impact because of the associated environmental effects. In 2000 the state negotiated and agreed to the Smithfield Agreement. This agreement required the swine industry to work with our state universities to research the technologies to turn hog waste into usable, environmentally safe products. Further, the agreement requires the identification of technologies to replace the current lagoon systems. Ms. Szlosberg introduced Dr. Mike Williams, a professor at North Carolina State University. Dr. Williams was tasked with working with entities to identify the potential technologies for this requirement. A lot of progress has been made and it is the hope that several viable technologies will be identified by July. One of the major technologies is known as High Performance Anaerobic Digestion (HPAD). There are three products that are produced through this process: solids, liquids and gases. The discussion focused on the use of solids and the potential important role that the Department could play in supporting related technology development and while at the same time finding a solution to one of the most important environmental concerns to the state.

Dr. Williams began by thanking the committee for his opportunity to present to the EPPC. He summarized the Smithfield Agreement. Part of the agreement allocated 17.5 millions dollars to the university to develop technologies that specifically identify criteria to "pass the test" and become environmentally superior technologies. Many of the criteria involved odor, nutrients, pathogens, metals, etc. The agreement also identified criteria for economic feasibility. After four years of working towards this initiative, Mr. Williams said that he believes many of the technologies identified will pass the environmental performance criteria based on science, but there is concern for the ability to pass the economic feasibility criteria. The way the agreement is structured it that is an "all or none" proposition –a technology is both environmentally superior as well as economically feasible in order

to be considered a viable technology. The state made the rules and if the technology passes all the environmental criteria (odor, etc) but does not pass the economic feasibility, it can not move forward.

Dr. Williams noted that the presentation focuses on only one of the eighteen technologies studied. He noted that he does not represent this technology other than as an investigator of the university and to share with the committee what he sees as a potential for DOT to assist with and benefit from this technology.

The benefits of converting swine waste into safe products are:

- Improved air and water quality; reduced nutrient run-off
- Organically grown vegetation cover on state roadsides
- Produce new products – soil amendment and methane – for agricultural producers
- Assist with transition away from lagoon and sprayfield system
- Enhance North Carolina's reputation for successful environmental stewardship

About a third of the eighteen technologies being studied are on track to be viable in July for the "technology determinations", at which time a report will be released with the recommendations. The search process for these technologies was accomplished through a competitive selection process. The technologies included liquid-solid separation technologies, novel composting methods and energy recovery systems. In July, four years after the agreement was initiated, the first six technologies will be tested. Six months following the first determination, six more technologies will be evaluated and then July of 2005 the remaining six technologies will be evaluated. Dr. Williams is confident that some of the technologies will be evaluated as environmentally superior.

Today's presentation will focus on one of the potentially successful technologies called High (Solids) Performance Anaerobic Digestion (HPAD). One treatment that can be used to treat organic waste is anaerobic digestion. If it is done correctly, using naturally occurring organisms, it can produce solids, biogas and nutrients. The biogas can be used for several products, such as direct burning, or it can be converted to energy. Currently because of the rate structure in the state, it is not economically feasible to convert biogas into electricity to put back on the grid. Other states and countries have this capability, but North Carolina has yet to achieve this economic capacity. Biogas can also be converted to other end products such as methanol and bio-diesel fuels. There are numerous methods of approach being taken through this research and there is the potential for significant changes if these processes and technologies can be applied successfully.

The facility where HPAD can be processed is located near Clinton, NC. A twenty-three member advisory panel of scientists, environmental experts and researchers were appointed to oversee the process and to evaluate the proposals. Representatives also included government agencies such as DENR, DOT and Agriculture. Therefore, it would very difficult to falsely recommend an insufficient technology. Dr. Williams recognized one of the members on the panel, Alan Briggs, with Save Our State, who was in attendance at the meeting.

One of the positive aspects of HPAD is the substantial gas output. This process is very efficient in breaking down the biogas and producing the various products previously discussed. All projects dealing with swine waste will produce solids and the key to success will be how to use the solids. Dr. Williams and the panel proposes that collaboration be established between NCDOT, NCSU, DENR, Department of Agriculture and the technology providers to make safe roadside products from swine waste and other organic waste. Objective researchers would conduct greenhouse and roadside tests. Economists will be involved in determining the economic feasibility

as well. During the collaborative evaluation, vex scale tests, greenhouse tests, toxicity parameters, odor tests, nutrient tests, leachability, run-off tests would be evaluated. Further, the use of these products under different weather conditions would be reviewed. Mr. Williams noted that the plan this is conceptual plan at this time and it is important that NCDOT and the advisory panel be heavily involved throughout.

A reasonable estimate for the research project based on all testing and man-hours involved is $300,000. Testing is currently scheduled for early this spring and will be concluded by late June 2005.

In summary, this research project is a very good opportunity to determine appropriate outlets for organic waste solids, and Mr. Williams indicated that it is crucial that DOT be engaged in the process for its success. He added that in addition to the HPAD method, there will be other successful technologies. Up to this point the environmental community has embraced this concept. The research is close to being a success and with the partnership of DOT, Dr. Williams is confident that this will be achieved.

Ms. Szlosberg then introduced Michelle Nowlin, an attorney with the Southern Environmental Law Center, to share with the committee what some of the thoughts of the environmental community on this partnership effort.

Ms. Nowlin opened by noting that the state produces more than 18 million hogs every year, making North Carolina the second largest swine producer in the nation. In addition, NC is the largest producer of turkeys and the fourth largest producer of broiler chickens and will soon become the largest producer of eggs. Therefore, one can imagine the amount of waste that is produced in this state -- it totals more than 10 million pounds of manure produced each day. As a result, there is significant ground water contamination and deteriorating water quality in our coastal areas and estuaries. This creates significant environmental concerns and public health issues. Further, it can produce negative economic effects through tourism and industries that depend on clean water.

In 1997 a moratorium on the construction and expansion of the hog industry was enacted to allow the state to develop a comprehensive regulatory program for livestock and to develop innovative products that can use the by-products of the waste. Dr. Williams and his colleagues were already studying some aspects when the Smithfield Agreement was enacted following the nationally publicized images of the flushed lagoons and deceased hogs after Hurricane Floyd. The environmental community is very supportive of the enactment of the Smithfield Agreement. Smithfield Foods, the largest producer of swine and pork products in the world, assisted with the funding of this agreement. Ms. Nowlin noted that many people don't think there is a better way to deal with the swine waste than the spray fields. However, she feels that this presently is the cheapest way of dealing with the problem and that with assistance others means can be identified. The state must come together to produce these economic and environmentally friendly technologies. The technology is possible because it is being conducted in other states and countries, and the HPAD system has the greatest promise. Its promise is valuable because of its production of valuable by-products that have economic incentives. However, in North Carolina, we currently face a challenge with the economic hurdles of this process, as Dr. Williams commented. NCDOT and the state now have the opportunity to assist with this challenge and, if we move together in collaboration, there will be success. Ms. Nowlin made it clear that she is not endorsing any one company; instead, she endorses the process and partnership that is proposed to achieve this success. She concluded her presentation.

Ms. Szlosberg noted one of her first questions when presented with the agenda topic was what is exactly going to be sprayed on the roadside and what does it look like. A sample was produced for the group and it looks very

similar to traditional fertilizer. Ms. Szlosberg passed a closed container of the sample around the room for display. Ms. Szlosberg opened the floor to questions.

Board Member Tom Betts asked how the manure will be transferred from the farms to the treatment facilities. Dr. Williams responded that this process is for high solids; therefore, the solids would be separated at the individual farms prior to transfer. Each farm would have to have some kind of solids separation unit. There are several technologies that would require this and it would be a lot cheaper to transfer only the solids.

Mr. Betts asked whether this process could someday be economically viable? Dr. Williams responded that it could be with the right market and facilities. He used Denmark as an example of economic success using this process.

Ms. Szlosberg recognized Transportation Secretary Lyndo Tippett to make a few comments. Secretary Tippett opened by telling a personal story about his experience on a farm and the economic benefits and revenue from the cattle waste being sold as fertilizer. He elaborated that the process noted in the presentation can be done and NCDOT could be viewed as a leader in the development of a solution to the hog waste problems. Secretary Tippett further noted that he is encouraged by the work that has been done and he looks forward to the partnership effort.

Ms. Szlosberg thanked Secretary Tippett for his comments. She elaborated on the potential that this may have on the economy of the state and the potential for the transportation community to partner with the business community, the environmental community, and public and private interests.

Seeing no further questions, Ms. Szlosberg welcomed a motion to move forward with the research project presented and to have NCDOT staff determine the appropriate funding mechanisms. The motion was made by Board Member Marion Cowell and seconded by Board Member Tom Betts. The committee unanimously approved the motion.

Ms. Szlosberg adjourned the meeting at 9:25 AM.

The next meeting for the Environmental Planning and Policy Committee is scheduled for Wednesday, March 3, 2004 at 8:30 AM in the Board Room (Room 150) of the Transportation Building.

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